

P-6.5 Apply formulas to determine the relative intensity of sound

Revised Taxonomy Level 3.2 C_A Apply (implement) procedural knowledge

It is essential for all students to

Understand relative intensity measurements (decibels)

- ❖ Compare the intensity of a particular sound to the intensity of a sound at the threshold of hearing (I_0)
- ❖ Understand that the intensity of sound at the threshold of hearing is 10^{-12}W/m^2
- ❖ The relative intensity of sound is a logarithmic scale
- ❖ Relative intensity (measured in bels) = $\log I/I_0$
- ❖ ten bels = one decibel = $10 \log I/I_0$.
- ❖ solve problems involving the relative intensity of sound

Assessment

As the verb for this indicator is implement (apply), the major focus of assessment will be for students to show that they can “apply a procedure to an unfamiliar task”. The knowledge dimension of the indicator is “knowledge of subject-specific techniques and methods” In this case the procedure is the application of the formula for the relative intensity of sound. The unfamiliar task should be a novel word problem or laboratory investigation. A key part of the assessment will be for students to show that they can apply the knowledge to a new situation, not just repeat problems which are familiar. This requires that students have a conceptual understanding of the relative intensity of sound as well as mastery of the skills required to implement the mathematical equation or in order to solve the problem.